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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

NOTE, JANIS L

ART UNIT PAPER NUMBER

1756

DATE MAILED: 03/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/724,260

Applicant(s)

EMOTO ET AL.

Examiner

Janis L. Dote

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2005.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-10 and 12-18 is/are rejected.
7) ☒ Claim(s) 11 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 01 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) Paper No(s)/Mail Date. _____
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) 5) ☐ Notice of Informal Patent Application (PTO-152)
Paper No(s)/Mail Date 12/1/03; 2/17/04; 3/11/04; 11/16/04; 12/8/04; 1/11/05; 2/17/05; 3/11/05 6) ☐ Other: _____

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1. The US patents listed on the "List of related cases" in the Information Disclosure Statement (IDS) filed on Mar. 1, 2004, have been crossed out by the examiner because the references are already listed on the form PTO-1449 filed on Mar. 1, 2004.

The examiner has considered only the material submitted by applicants, i.e., copies of the originally filed claims, abstracts, and figures of the US applications listed on "List of related cases" in the Information Disclosure statements filed on Feb. 17, 2004, and Mar. 1, 2004.

The examiner has considered the US applications listed on "List of related cases" in the Information Disclosure statements filed on Nov. 16, 2004, Dec. 8, 2004, Jan. 11, 2005, and Mar. 1, 2005.

2. The information disclosure statement filed on Dec. 1, 2003, does not fully comply with 37 CFR 1.98(a)(2)(iii), which requires legible copies of those portions of the copending U.S. applications which caused them to be listed.

Since the submission appears to be bona fide, applicants are given **ONE (1) MONTH** from the date of this notice to supply the above mentioned omissions or corrections in the information disclosure statements. The examiner notes that if applicants have a postcard receipt stating that the USPTO did receive

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copies of the documents, applicants should provide a copy of said receipt so that there is no ambiguity in the record that applicants did provide copies of the missing documents.

NO EXTENSION OF THIS TIME LIMIT MAY BE GRANTED UNDER EITHER 37 CFR 1.136(a) OR (b). Failure to timely comply with this notice will result in the above mentioned information disclosure statement being placed in the application file with the noncomplying information **not** being considered. See 37 CFR 1.97(i).

3. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.

4. The disclosure is objected to because of the following informalities:

(1) The typographic error "□ " at page 16, lines 5-6, of the specification, in the phrase "glass transition temperature (Tg) of from 50 to 90 □Z" (emphasis added). See the specification at page 13, lines 14-15, which discloses a Tg "of from 50 to 90°C" (emphasis added).

(2) The use of trademarks, e.g., Henschel mixer [sic: HENSCHEL MIXER] at page 64, line 10, has been noted in this application. The trademarks should be capitalized wherever they appear and be accompanied by the generic terminology. This example is not exhaustive. Applicants should review the entire specification for compliance.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Appropriate correction is required.

5. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

(1) In instant claim 8, the recitation "first binder resin has an acid value of from 1 to 30 mg KOH/g" lacks antecedent basis in the specification.

(2) In instant claim 11, the recitation "particulate resin material has a volume-average molecular weight of from 1,000 to 100,000" (emphasis added) lacks antecedent basis in the

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specification. See page 16, lines 20-26, of the specification, which discloses that the particulate resin material has a "weight-average molecular weight not greater than 100,000, and more preferably not greater than 50,000. A minimum molecular weight thereof is typically 4,000" (emphasis added).

(3) The method broadly recited in instant claim 18 lacks antecedent basis in the specification. See page 11, line 24, to page 12, line 5, of the specification, which discloses "subjecting the dispersed material to a polyaddition reaction with a reaction material formed of amines." The method recited in instant claim 18 does not recite said "polyaddition resection with a reaction material formed of amines." Moreover, the specification at pages 11-12 does not disclose the step of "washing the toner particles to remove excessive particles of the particulate resin material from a surface thereof" recited in instant claim 18.

6. The examiner notes that the instant specification at page 66, lines 5-8, discloses that the particulate resin material coverage of 50 to 100% recited in instant claim 1 is an area ratio of the area of particulate resin material on the surface of the toner particle to the total surface area of the toner particle.

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The examiner notes that the instant specification at page 18, lines 18-21, discloses that the average circularity recited in instant claim 12 is determined by dividing "a peripheral length of a circle having an area equivalent to that of a projected image [of the toner particle] obtained by the method [previously disclosed optical detection method]" by "an actual peripheral length of the particulate material [the toner particle]."

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f), or (g) prior art under 35 U.S.C. 103(a).

10. Claims 1-10 and 12-18 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US 2004/0142265 A1 (Tomita), as evidenced by applicants' admission at page 10, lines 7-18, page 11, lines 2-6, page 17, line 26, to page 18, line 4, and Table 3 at page 69.

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the

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invention "by another," or by an appropriate showing under 37 CFR 1.131.

Tomita discloses a toner comprising toner particles comprising a binder resin that comprises a modified polyester resin and an unmodified polyester resin - low molecular weight polyester 1, montan wax as the releasing agent, and carbon black, and organic fine resin particles 1 adhered to the surface of the toner particles. See paragraphs 0207-0213, 0217-0224, and 0239-0241; and example 6 in paragraph 0242. The toner has a number average particle size (D_n) of $4.7\text{ }\mu\text{m}$ and a volume average particle size (D_v) of $5.4\text{ }\mu\text{m}$, and a ratio of D_v/D_n of 1.15. The toner has a spindle shape which meets the shape limitations recited in instant claims 13 and 14. The toner also has an average circularity of 0.95. See Table 1 at page 22, example 6. The D_v , the ratio D_v/D_n , and the average circularity are within the ranges recited in instant claims 6, 7, and 12, respectively. The modified polyester resin has a glass transition temperature (T_g) of 55°C , which is within the range of 40 to 55°C recited in instant claim 1. The weight ratio of the modified polyester to the low polyester resin 1 is about 0.5, which is within the ratio range of 5/95 to 40/60 recited in instant claim 1. The weight ratio was determined by the information provided in example 6 of Tomita. Organic fine resin particles 1 have a T_g

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of 59°C, and an average particle size of 105 nm. The Tg and average particle size meet the ranges recited in instant claim 1 and 10, respectively. The fine resin particles comprise a vinyl resin, which meets the compositional limitation recited in instant claim 9. Accordingly, the Tomita toner particles in example 6 meet the toner particles compositional limitations recited in instant claims 1, 4, and 5, and the physical limitations recited in instant claims 6, 7, and 12-14. The Tomita organic fine particles meet the particulate resin limitations recited in instant claims 1, 9, and 10.

Tomita discloses another toner comprising toner particles comprising a binder resin that comprises a modified polyester resin and an unmodified polyester resin - low molecular weight polyester 2, an ester wax as the releasing agent, and carbon black, and organic fine resin particles 2 adhered to the surface of the toner particles. See paragraphs 0208-0224 and 0243-0245; and example 7 in paragraph 0246. The toner has a number average particle size (D_n) of 3.4 μm and a volume average particle size (D_v) of 4.0 μm , and a ratio of D_v/D_n of 1.18. The toner has a spindle shape which meets the shape limitation recited in instant claims 13 and 14. See Table 1 at page 22, example 3. The D_v and the ratio D_v/D_n are within the ranges recited in instant claims 6 and 7, respectively. The low molecular weight

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polyester 2 has an acid value of 15, which meets the acid value recited in instant claim 8. The modified polyester resin has a glass transition temperature (T_g) of 55°C, which is within the range of 40 to 55°C recited in instant claim 1. The weight ratio of the modified polyester to low polyester resin 1 is about 0.4, which is within the ratio range of 5/95 to 40/60 recited in instant claim 1. The weight ratio was determined by the information provided in example 7 of Tomita. Organic fine resin particles 2 have a T_g of 56°C, and an average particle size of 90 nm. The T_g and average particle size meet the ranges recited in instant claim 1 and 10, respectively. The fine resin particles comprise a vinyl resin, which meets the compositional limitation recited in instant claim 9. Accordingly, the Tomita toner particles in example 7 meet the toner particles compositional limitations recited in instant claims 1, 4, 5, and 8, and the physical limitations recited in instant claims 6, 7, 13, and 14. The Tomita organic fine particles meet the particulate resin limitations recited in instant claims 1, 9, and 10.

Tomita also teaches that the toners can be used in a two-component developer comprising a carrier, thereby meeting the developer limitations recited in instant claim 15.

Paragraph 0150.

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Tomita further discloses an image forming apparatus that meets the apparatus comprising a process cartridge, which comprises a developing unit 13. See Fig. 7 and paragraphs 0203-0204. Tomita further discloses that the developing unit comprises a toner container. Paragraph 0205, lines 1-3.

Tomita does not disclose that the toners in examples 6 and 7 have (1) a ratio of the toner storage modulus at 80°C (G'_{80}) to the toner storage modulus at 180°C (G'_{180}) of 100 to 1000 as recited in instant claim 1, and (2) that 50 to 100% of the surface of the toner particles are covered with the organic fine resin particles, as recited in instant claim 1. Nor does Tomita disclose that the toners have the values of G'_{80} and G'_{180} recited in instant claims 2 and 3.

The instant specification at page 10, lines 15-18, discloses that a toner having a ratio G'_{80}/G'_{180} of 100 to 1000 has good low-temperature fixability, releasability, and a small particle diameter. According to the instant specification at page 11, lines 2-6, low temperature fixability cannot be obtained when the ratio is greater than 1000 and that it is difficult to form a toner particle having a ratio of less than 100. The instant specification at page 10, lines 7-12, further discloses that when the toner has a G'_{80} and a G'_{180} as

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recited in instant claim 3, low-temperature fixability is further improved. The instant specification at page 17, line 26, to page 18, line 1, discloses that the particulate resin material improves friction chargeability of the toner. The specification at page 18, lines 1-4, also teaches that when the particulate resin material coverage is less than 50%, a "sufficient friction chargeability cannot be imparted to the toner, resulting in insufficient image density and background fouling of imaged produced thereby." The specification shows that toner particles that are not covered with the organic resin particles did not exhibit stable charging after 100,000 runs; while toner particles having a resin particle coverage of more than 50% exhibited stable charging after 100,000 runs. See the instant specification, Table 3 at page 69.

As discussed above, the compositions of the Tomita toner particles and the Tomita organic fine resin particles in examples 6 and 7 meet the compositional limitations recited in the instant claims. The D_v and ratio D_v/D_n of the toners meet the ranges recited in instant claims 6 and 7, respectively. As discussed infra, the toner particles are obtained by a process that meet the steps recited in instant claim 18. Tomita discloses that the toners in examples 6 and 7 have excellent image-fixing properties at low temperatures and hot offset

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resistance, i.e. Paragraph 0030; and Table 2 at page 23, examples 6 and 7, which reports that the toners in examples 6 and 7 have a "lowest fixing temperature" of 120°C or 125°C, respectively, and both exhibit no occurrence of offset for temperatures below 220°C. Tomita discloses that the toners have excellent particle fluidity and transfer ability.

Paragraph 0030. Tomita also discloses that the toners in examples 6 and 7 exhibit stable charging ability and also provides images with high resolution. Paragraphs 0030 and 0278; and Table 1, examples 6 and 7, which reports that the toners exhibit stable charging after 100,000 runs. These are the properties sought by applicants. Accordingly, because the Tomita toner particles and fine resin particles in examples 6 and 7 meet the compositional and physical limitations recited in the instant claims and the Tomita toners in examples 6 and 7 appear to have the properties sought by applicants, it is reasonable to presume that the Tomita toners in examples 6 and 7 have the storage modulus ratio G'_{80}/G'_{180} and the resin particle coverage of 50 to 100% recited in instant claim 1 and the values of G'_{80} and G'_{180} recited in instant claims 2 and 3. The burden is on applicants to prove otherwise. In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

The Tomita toners in examples 6 and 7 are obtained by: (1) preparing a master batch comprising the carbon black and a polyester resin; (2) preparing a material solution comprising the release agent and the low molecular weight polyester; (3) forming a pigment-wax dispersion by mixing the master batch of step (1), the material solution, and additional low molecular weight polyester; (4) mixing the pigment-wax dispersion of step (3), the modified polyester resin comprising isocyanate groups, which is capable of reacting with an active hydrogen to form an urea-modified polyester, and a ketimine compound, which has an active hydrogen, in an organic solvent; (5) dispersing the mixture of step (4) in an aqueous medium comprising resin particles, while reacting the ketimine compound with the modified polyester resin to form toner particles; (6) removing the organic solvent from the dispersion of step (5); and (7) washing the toner particles resulting from step (6).

Paragraphs 0207-0224 and 0239-0246. The Tomita process steps meet the process steps recited instant claim 18, but for the recitation "to remove excessive particles of the particulate resin material from a surface thereof." Tomita does not disclose that washing the toner particles removes the excessive organic fine resin particles from the surface of the toner particles as recited in instant claim 18. However, the

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recitation "to remove excessive particles of the particulate resin material from a surface thereof" as recited in instant claim 18 is a statement of intended use, which does not distinguish the process disclosed by Tomita. The recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art or in a process, a manipulative difference, in order to patentably distinguish the claimed invention from the prior art. See In re Casey, 152 USPQ 235 (CCPA 1967) and In re Otto, 136 USPQ 458, 459 (CCPA 1963). As discussed above, the Tomita method meets the steps recited in instant claim 18 but for the particular use recited in the instant claim. For the reasons discussed above, the Tomita toners also appear to meet the coverage amount recited in instant claim 1. Thus, the intended use recited in the instant claim does not result in a difference between the process recited in the instant claim and the process disclosed by Tomita.

11. US 2003/0138717 A1 (Yagi) was published on Jul. 24, 2003, and has an effective filing date of Oct. 31, 2002. The inventive entity of Yagi differs from that of the instant application. Thus, Yagi qualifies as prior art under 35 U.S.C.

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102(a) and under 35 U.S.C. 102(e). Accordingly, Yagi qualifies also as prior art under 35 U.S.C. 103(c).

12. Claims 1-10, 12, and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yagi, as evidenced by applicants' admission at page 10, lines 7-18, and page 11, lines 2-6.

Yagi discloses a toner comprising toner particles comprising a binder resin that comprises a modified polyester resin and an unmodified polyester resin - low molecular weight polyester 1, carnauba wax as the releasing agent, and carbon black, and organic fine resin particles 1 adhered to the surface of the toner particles at a coverage ratio of 47%. See paragraphs 0239-0273; example 3 in paragraph 0275; and Table 1 at page 23, example 3. The toner has a number average particle size (D_n) of $5.17 \mu\text{m}$ and a volume average particle size (D_v) of $5.80 \mu\text{m}$, and a ratio of D_v/D_n of 1.12. The toner also has an average circularity of 0.957. See Table 1 at page 23, example 3. The D_v , the ratio D_v/D_n , and the average circularity are within the ranges recited in instant claims 6, 7, and 12, respectively. The modified polyester resin has a glass transition temperature (T_g) of 55°C , which is within the range of

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40 to 55°C recited in instant claim 1. See paragraph 0246. Low molecular weight polyester resin 1 has an acid value of 25, which is within the acid value range recited in instant claim 8. The weight ratio of the modified polyester to low polyester resin 1 is about 0.6, which is within the ratio range of 5/95 to 40/60 recited in instant claim 1. The weight ratio was determined by the information provided in example 3 of Yagi. Organic fine resin particles 1 have a Tg of 57°C, and an average particle size of 100 nm. The Tg and average particle size meet the ranges recited in instant claim 1 and 10, respectively. The fine resin particles comprise a vinyl resin, which meets the compositional limitation recited in instant claim 9. Accordingly, the Yagi toner particles in example 3 meet the toner particles compositional limitations recited in instant claims 1, 4, 5, and 8, and the physical limitations recited in instant claims 6, 7, and 12. The Tomita organic fine particles meet the particulate resin limitations recited in instant claims 1, 9, and 10.

Yagi also discloses that the toner can be used in a two-component developer comprising a carrier or as a one-component developer, thereby meeting the developer limitations recited in instant claim 15. Paragraph 0220. Yagi discloses a toner container shown in Fig. 2. Paragraph 0236.

Yagi does not disclose that the toner in example 3 has (1) a ratio of the toner storage modulus at 80°C (G'80) to the toner storage modulus at 180°C (G'180) of 100 to 1000 as recited in instant claim 1. Nor does Yagi disclose that the toner has the values of G'80 and G'180 recited in instant claims 2 and 3.

The instant specification discloses that a toner having a ratio G'80/G'180 of 100 to 1000 has good low-temperature fixability, releasability, and a small particle diameter. The discussion of the toner storage modulus in the instant specification in paragraph 10 above is incorporated herein by reference.

As discussed above, the compositions of the Yagi toner particles and the Yagi organic fine resin particles in example 3 meet the compositional limitations recited in the instant claims. The toner Dv and ratio Dv/Dn meet the ranges recited in instant claims 6 and 7, respectively. As discussed infra, the toner particles in example 3 are obtained by a process that meets the steps recited in instant claim 18. Yagi discloses that the toner in example 3 has low temperature fixability and offset resistance, and does not contaminate the image forming members used, such as the fixing device and image bearing member. Paragraph 0032; and Table 3 at page 23, example 3, which reports that the toner in example 3 has a "lower fixing

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temperature" of 140°C and exhibits no occurrence of offset for temperatures below 220°C. Table 3 also reports that no toner filming was observed. These are the properties sought by applicants. Accordingly, because the Yagi toner particles and fine resin particles in example 3 meet the compositional and physical limitations recited in the instant claims and the Yagi toner appears to have the toner properties sought by applicants, it is reasonable to presume that the Yagi toner in example 3 has the storage modulus ratio G'_{80}/G'_{180} recited in instant claim 1 and the values of G'_{80} and G'_{180} recited in instant claims 2 and 3. The burden is on applicants to prove otherwise.

Fitzgerald, supra.

As discussed above, organic fine resin particles 1 in example 3 of Yagi are present on the surface of the toner particles in a coverage ratio of 47%. The coverage ratio of 47% is outside the coverage ratio of 50 to 100% recited in instant claim 1. However, Yagi teaches that the fine resin particle coverage ratio can range from 1 to 90%, preferably from 5 to 80%. Paragraphs 0083 and 0084. The upper limits, 90% and 80%, of the coverage ratios are within the range of 50 to 100% recited in instant claim 1. The ranges of 1 to 90% and 5 to 80% overlap the range of 50 to 100% recited in instant claim 1. Yagi exemplifies toners having a fine resin particle coverage

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ratio of 85%, which is within the range recited in instant claim 1. See Table 1 at page 23, example 11. According to Yagi, "[w]hen the coverage ratio is greater than 90%, the surface of the toner particles is almost perfectly covered with the resin particles, and the resin particles tend to prevent a release agent . . . included in the toner particles from exuding therefrom. Thereby, the releasing effect cannot be obtained, resulting in occurrence of offset problem." When the coverage ratio is less than 1%, "the resin particles cannot impart good frictional charging properties to the toner, and thereby the resultant toner has low charge quantity. Therefore, the resultant images have low image density and background fouling, and tends to scatter in the developing section, resulting in contamination of various members used in the image forming apparatus." Paragraph 0084. Thus, the prior art appears to recognize that the coverage ratio is a result-effective variable. The variation of a result-effective variable is presumably within the skill of the ordinary person in the art.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Yagi, to adjust, through expectation, the fine resin particle coverage ratio in the toner in example 3 of Yagi, such that the resultant toner has a coverage ratio that is within the range of 50 to 90%

recited in instant claim 1, such as 80% or 90%, because that person would have had a reasonable expectation of successfully obtaining a toner that has good frictional charging properties and that provides images with high image density with no background fouling.

The Yagi toner in example 3 is obtained by: (1) preparing a master batch comprising the carbon black and a polyester resin; (2) preparing a material solution comprising the carnauba wax and the low molecular weight polyester; (3) forming a pigment-wax dispersion by mixing the master batch of step (1), the material solution, and additional low molecular weight polyester; (4) mixing the pigment-wax dispersion of step (3), a modified polyester resin comprising isocyanate groups, which is capable of reacting with an active hydrogen to form the urea-modified polyester, and a ketimine compound, which has an active hydrogen, in an organic solvent; (5) dispersing the mixture of step (4) in an aqueous medium comprising resin particles, while reacting the ketimine compound with the modified polyester resin to form toner particles; (6) removing the organic solvent from the dispersion of step (5); and (7) washing the toner particles resulting from step (6). Paragraphs 0252-0273. The Yagi process steps meet the process steps recited instant claim 18, but for the recitation "to remove excessive particles of the

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particulate resin material from a surface thereof." Yagi does not disclose that washing the toner particles removes the excessive organic fine resin particles from the surface of the toner particles as recited in instant claim 18. However, the recitation "to remove excessive particles of the particulate resin material from a surface thereof" as recited in instant claim 18 is a statement of intended use, which does not distinguish the process disclosed by Tomita. For the reasons discussed above, the toner rendered obvious over the teachings of Yagi meets the coverage amount recited in instant claim 1. Thus, the intended use recited in the instant claim does not result in a difference between the process recited in the instant claim and the process rendered obvious over the teachings of Yagi.

13. Claim 11 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record does not disclose or suggest a particulate material having a volume-average molecular weight of 1000 to 100,000 recited in instant claim 11.

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Tomita teaches organic fine resin particles having a weight-average molecular weight of 30,000. Tomita, preparation of organic fine particle emulsion at paragraph 0227. Yagi teaches that the organic fine resin particles preferably have a weight average molecular weight of not greater than 100,000, and more preferably from 4,000 to 50,000. Yagi also discloses the disadvantages of using resin particles having a weight average molecular weight that is "too high." Yagi, paragraph 0077. However, neither reference discloses organic resin particles having a volume average molecular weight as recited in instant claim 11. Nor is there sufficient evidence in the present record to reasonably presume that the prior art organic resin particles have a volume average molecular weight as recited in instant claim 11. As shown in US 5,461,089 (Handyside), the value of the volume average molecular weight is not the same as value of the weight average molecular weight. See Handyside, Table 3 at col. 14.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The central fax phone number is (703) 872-9306.

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Any inquiry regarding papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Claudia Sullivan, whose telephone number is (571) 272-1052.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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